

CLAIMS

1. (previously presented) A pump comprising:  
a rotor and a stator;  
a housing enclosing the rotor and the stator, the housing having an inlet for receiving a first fluid, and a port positioned downstream from the inlet; and  
means for injecting a second fluid into the housing through the port, wherein the second fluid acts on deposits on a surface of the rotor and a surface of the stator.
2. (previously presented) The pump according to Claim 1 comprising a plurality of ports.
3. (previously presented) The pump according to Claim 2 wherein the ports are located radially about the housing.
4. (previously presented) The pump according to Claim 2 wherein the ports are located along a length of the rotor.
5. (previously presented) The pump according to Claim 2 wherein at least one of the ports includes a nozzle for spraying fluid.
6. (previously presented) The pump according to Claim 5 wherein the nozzle is integrally formed within at least one of the ports.
7. (previously presented) The pump according to Claim 6 wherein the housing comprises a two skinned wall having an inner skin and an outer skin and forming a cavity between the inner and outer skins.
8. (previously presented) The pump according to claim 7 wherein the inner skin of the housing is adapted to form the stator.

9. (previously presented) The pump according to Claim 1 wherein the pump is a screw pump having two threaded rotors.
10. (previously presented) The screw pump according to Claim 9 wherein the port is located downstream of a first two complete turns of thread of the threaded rotors.
11. (previously presented) The pump according to claim 1 wherein the pump is a claw pump.
12. (previously presented) The pump according to claim 1 wherein the pump is a Roots pump.
13. (previously presented) The pump according to Claim 1 wherein the second fluid is a liquid.
14. (previously presented) The pump according to Claim 1 wherein the second fluid is a solvent.
15. (previously presented) The pump according to Claim 1 wherein the second fluid is a gas.
16. (previously presented) The pump according to Claim 15 wherein the second fluid is steam.
17. (previously presented) The pump according to Claim 1 wherein the second fluid comprises a reactive substance for reacting with the deposits.
18. (previously presented) A pump comprising:
  - a rotor and a stator;
  - a housing enclosing the rotor and the stator and having a port; and
  - means for injecting a fluid into the housing through the port wherein the fluid

comprises a reactive substance for reacting with particulates on a surface of the rotor and a surface of the stator to.

19. (previously presented) The pump according to Claim 18 wherein the fluid comprises a halogen.

20. (previously presented) The pump according to Claim 18 wherein the fluid comprises a compound selected from the group consisting of  $\text{ClF}_3$ ,  $\text{F}_2$ , and  $\text{NF}_3$ .

21. (cancelled)

22. (previously presented) A method of managing deposits within a pump, the pump comprising a rotor and a stator, and a housing enclosing the rotor and the stator, the housing having an inlet for receiving a first fluid, and downstream from the inlet, a port, the method comprising:

injecting into the housing via the port a second fluid for acting on deposits on a surface of the rotor and a surface of the stator.

23. (previously presented) The method according to Claim 22 wherein the second fluid is injected from a plurality of ports.

24. (previously presented) The method according to Claim 23 wherein the ports are located radially about the housing.

25. (previously presented) The method according to Claim 23 wherein the ports are located along a length of the rotor.

26. (previously presented) The method according to Claim 22 wherein the second fluid is a liquid.

27. (previously presented) The method according to Claim 22 wherein the second

fluid is a solvent.

28. (previously presented) The method according to Claim 22 wherein the second fluid is a gas.

29. (previously presented) The method according to Claim 28 wherein the second fluid is steam.

30. (previously presented) The method according to Claim 22 wherein the second fluid comprises a reactive substance for reacting with the deposits.

31. (cancelled)

32. (previously presented) The method according to Claim 22 wherein the second fluid comprises a halogen.

33. (previously presented) The method according to Claim 22 wherein the second fluid comprises a compound selected from the group consisting of ClF<sub>3</sub>, F<sub>2</sub>, and NF<sub>3</sub>.

34. (previously presented) The method according to Claim 22 wherein the second fluid is injected through the port at predetermined time intervals.

35. (previously presented) The method according to Claim 22 further comprising the steps of:

- (a) monitoring the performance of the pump;
- (b) determining accumulation of the deposits on the internal surfaces based on the monitored performance;
- (c) calculating a rate of flow of the second fluid required to compensate for the accumulation of the deposits; and
- (d) adjusting the rate of flow of the second fluid to reflect the calculated rate of flow of the second fluid.

36. (previously presented) A method for managing deposits within a pump mechanism by delivering to a rotor of the pump, a fluid for dissolving, diluting or otherwise disengaging deposits which have accumulated on the internal working surfaces of the pump, the method comprising the steps of:

- (a) monitoring the performance of the pump;
- (b) calculating the rate of accumulation of the deposits on the internal working surfaces of the pump based on the monitored performance;
- (c) calculating a rate of flow of the fluid, required to compensate for the accumulation of the deposits; and
- (d) adjusting the rate of flow of the fluid being delivered to the rotor to reflect the calculated rate of flow of the fluid.

37. (currently amended) The A method for managing deposits within a pump mechanism by delivering to a rotor of the pump, a fluid for dissolving, diluting or otherwise disengaging deposits which have accumulated on the internal working surfaces of the pump, the method comprising the steps of:

- (a) monitoring the performance of the pump;
- (b) calculating the rate of accumulation of the deposits on the internal working surfaces of the pump based on the monitored performance;
- (c) calculating a rate of flow of the fluid, required to compensate for the accumulation of the deposits;
- (d) adjusting the rate of flow of the fluid being delivered to the rotor to reflect the calculated rate of flow of the fluid;

~~according to Claim 36 wherein the pump is inoperative as the fluid is delivered, the method further comprising the step of applying torque to rotors of the pump to overcome any remaining impeding force.~~

38. (currently amended) The A method for managing deposits within a pump mechanism by delivering to a rotor of the pump, a fluid for dissolving, diluting or otherwise disengaging deposits which have accumulated on the internal working

surfaces of the pump, the method comprising the steps of:

(a) monitoring the performance of the pump;  
(b) calculating the rate of accumulation of the deposits on the internal working  
surfaces of the pump based on the monitored performance;  
(c) calculating a rate of flow of the fluid, required to compensate for the  
accumulation of the deposits;  
(d) adjusting the rate of flow of the fluid being delivered to the rotor to reflect the  
calculated rate of flow of the fluid; wherein the pump is inoperative as the fluid is  
delivered;  
the method further comprising the steps:  
applying torque to rotors of the pump to overcome any remaining impeding force;  
introducing a thermal fluid into a cavity formed within a housing of the pump, the cavity encircling the rotors; and  
heating the thermal fluid in the cavity to raise the temperature of the fluid and the deposits to release the deposits prior to the step of applying torque to the rotors.

39. (cancelled)

40. (cancelled)

41. (cancelled)

42. (previously presented) The pump according to Claim 4 wherein at least one of the ports includes a nozzle for spraying the second fluid.

43. (previously presented) The pump according to Claim 42 wherein the nozzle is integrally formed within at least one of the ports.

44. (previously presented) The pump according to Claim 5 wherein the second fluid is a liquid.

45. (previously presented) The pump according to Claim 44 wherein the second fluid is a solvent.

46. (previously presented) The pump according to Claim 5 wherein the second fluid is a gas.

47. (previously presented) The pump according to Claim 46 wherein the second fluid is steam.

48. (previously presented) The pump according to Claim 5 wherein the second fluid comprises a reactive substance for reacting with the deposits.

49. (previously presented) The pump according to Claim 48 wherein the second fluid comprises a halogen.

50. (previously presented) The pump according to any of Claim 48 wherein the second fluid comprises a compound selected from the group consisting of  $\text{ClF}_3$ ,  $\text{F}_2$ , and  $\text{NF}_3$ .

51. (previously presented) The pump according to Claim 1 wherein the housing comprises a two skinned wall having an inner skin and an outer skin and forming a cavity between the inner and outer skins.

52. (previously presented) The pump according to claim 52 wherein the inner skin of the housing is adapted to form the stator.

53. (previously presented) The pump according to Claim 1 wherein the pump is connected to a chemical vapor deposition apparatus having a process chamber and an outlet of the process chamber, wherein the pump inlet is connected to the outlet of the process chamber, and wherein the deposits are a by-product of a chemical vapor deposition process.

54. (previously presented) The method according to Claim 23 wherein the second fluid is injected through the ports at predetermined intervals.